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AUG 0 7 2003

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CORRECTION & SEQUENCE LISTING

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<120> Ornithine Biosynthesis Enzymes

<130> BB-1174

<140> 09/744,100

<141> 2001-01-16

<150> PCT/US99/15931

<151> 1999-07-14

<150> 60/093,209

<151> 1998-07-17

<160> 12

<170> Microsoft Office 97

<210> 1

<211> 1201

<212> DNA

<213> Zea mays

B4

<400> 1

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tgcaagcccc	cttgccgccc	ctaacttgccg	tcgcagccgc	ctccgcatct	ccgccacatc	180
cacggctgcg	ccgtctcctt	cgteggctgc	cgctgccacc	gcgtcgctga	gtcgagtgga	240
cgtgctctcg	gaggcgctcc	cttttattca	gcgattcaaa	ggcaagacgg	tggtgggtcaa	300
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<210> 2

<211> 345

<212> PRT

<213> Zea mays

<400> 2

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Leu Ala Ala Pro	Thr Cys Arg Arg	Ser Arg Leu Arg	Ile Ser Ala Thr
35		40	45
Ser Thr Ala Ala	Pro Ser Pro Ser	Ala Ala Ala Ala	Thr Ala Ser
50		55	60
Leu Ser Arg Val	Asp Val Leu Ser	Glu Ala Leu Pro	Phe Ile Gln Arg
65		70	75
Phe Lys Gly Lys	Thr Val Val Val	Lys Tyr Gly Gly	Ala Ala Met Lys
	85	90	95
Ser Pro Glu Leu	Gln Ala Ser Val	Ile Arg Asp Leu	Val Leu Leu Ser
	100	105	110
Cys Val Gly Leu	Arg Pro Val Leu	Val His Gly Gly	Gly Gly Pro Glu Ile
	115	120	125
Asn Ser Trp Leu	Leu Arg Val Gly	Val Glu Pro Gln	Phe Arg Asp Gly
	130	135	140
Leu Arg Val Thr	Asp Ala Leu Thr	Met Glu Val Val	Glu Met Val Leu
	145	150	155
Val Gly Lys Val	Asn Lys Asn Leu	Val Ser Leu Ile	Asn Ile Ala Gly
	165	170	175
Gly Thr Ala Ile	Gly Leu Cys Gly	Lys Asp Ala Arg	Leu Ile Thr Ala
	180	185	190
Arg Pro Ser Pro	Asn Ala Ala Ala	Leu Gly Phe Val	Gly Glu Val Ser
	195	200	205
Arg Val Asp Ala	Thr Val Leu His	Pro Ile Ile Ala	Ala Ala Gly His Ile
	210	215	220
Pro Val Ile Ala	Thr Val Ala Ala	Asp Glu Thr Gly	Gln Ala Tyr Asn
	225	230	235
Ile Asn Ala Asp	Thr Ala Ala Gly	Glu Ile Ala Ala	Ala Val Gly Ala
	245	250	255
Glu Lys Leu Leu	Leu Leu Thr Asp	Val Ser Gly Ile	Leu Ala Asp Arg
	260	265	270
Asn Asp Pro Gly	Ser Leu Val Lys	Val Val Asp Ile	Ala Gly Val Arg
	275	280	285
Lys Met Val Ala	Asp Gly Lys Val	Ala Gly Gly Met	Ile Pro Lys Val
	290	295	300
Glu Cys Cys Val	His Ala Leu Ala	Gln Gly Val His	Thr Ala Ser Ile
	305	310	315
Ile Asp Gly Arg	Val Pro His Ser	Leu Leu Leu Glu	Ile Leu Thr Asp

325

330

335

Glu Gly Thr Gly Thr Met Ile Thr Gly
340 345

<210> 3
<211> 1186
<212> DNA
<213> Oryza sativa

<220>
<221> unsure
<222> (613)
<223> n = A, C, G, or T

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catcgccgcc tctcccgccc ctcgacgctg cctccgtctc gccgtcacat ccgcccgcgc 180
gccggctgct tcgtcggcgg aggcggcgcc gccgtgagc cgcgtggatg tgcctctcaga 240
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cgctcggcctc caccctcgtc tcgtccacgc cggcgggccc gagatcaact cctgggtgct 420
ccgcgtcggc gtcgagccgc agttccggaa cggcctccgc gtcactgacg cgtcaacat 480
ggaggtcgtc gagatggtgc tcgtccgcaa ggtcaacaaa gaactcctct cctcatcaa 540
actccggggg gggagcgcgc taagtctctg ttggaaggaa gctcgcctcc tcaacgagcg 600
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cgctctccac ccaatcatcg cctccggtca catcccggtc atcgccactg tgggcgccga 720
cgagaccggg caggcctaca acatcaacgc tgacacggcg gccggcgaga tcgcccgcgc 780
ggtcggcgcg gagaagctgt tgcgtctcac agatgtgtct ggaattcttg ccgaccgtaa 840
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tctcacagat gagggcactg gcactatgat cactggctga ggtgattcat cccgtcgtgg 1080
tattctccgg tgcctctctt ctcatactgt aatgtaattt gcatttgata tgcctcatga 1140
ttgcaataag aattgtattc ctcaaaaaaa aaaaaaaaaa aaaaaa 1186

<210> 4
<211> 343
<212> PRT
<213> Oryza sativa

<220>
<221> UNSURE
<222> (195)
<223> Xaa = ANY AMINO ACID

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Thr Arg Val Ser Ser Pro Ala Pro Gly Pro Asn His Ala Lys Pro Ile
20 25 30
Ala Ala Ser Pro Ala Pro Arg Arg Cys Leu Arg Leu Ala Val Thr Ser
35 40 45
Ala Ala Ala Pro Ala Ala Ser Ser Ala Glu Ala Ala Ala Ala Leu Ser
50 55 60

Arg Val Asp Val Leu Ser Glu Ala Leu Pro Phe Ile Gln Arg Phe Lys
 65 70 75 80
 Gly Lys Thr Val Val Val Lys Tyr Gly Gly Ala Ala Met Lys Ser Pro
 85 90 95
 Glu Leu Gln Ala Ser Val Ile Arg Asp Leu Val Leu Leu Ser Cys Val
 100 105 110
 Gly Leu His Pro Val Leu Val His Gly Gly Gly Pro Glu Ile Asn Ser
 115 120 125
 Trp Leu Leu Arg Val Gly Val Glu Pro Gln Phe Arg Asn Gly Leu Arg
 130 135 140
 Val Thr Asp Ala Leu Asn Met Glu Val Val Glu Met Val Leu Val Arg
 145 150 155 160
 Lys Val Asn Lys Glu Leu Leu Ser Leu Ile Lys Leu Pro Gly Gly Ser
 165 170 175
 Ala Val Ser Leu Cys Trp Lys Glu Ala Arg Leu Leu Asn Glu Arg Pro
 180 185 190
 Ser Pro Xaa Glu Lys Gly Leu Arg Phe Val Gly Gly Val Trp Arg Val
 195 200 205
 Asp Ala Thr Val Leu His Pro Ile Ile Ala Ser Gly His Ile Pro Val
 210 215 220
 Ile Ala Thr Val Gly Ala Asp Glu Thr Gly Gln Ala Tyr Asn Ile Asn
 225 230 235 240
 Ala Asp Thr Ala Ala Gly Glu Ile Ala Ala Val Gly Ala Glu Lys
 245 250 255
 Leu Leu Leu Leu Thr Asp Val Ser Gly Ile Leu Ala Asp Arg Asn Asp
 260 265 270
 Pro Gly Ser Leu Val Lys Glu Ile Asp Ile Ala Gly Val Arg Gln Met
 275 280 285
 Val Ala Asp Gly Gln Val Ala Gly Gly Met Ile Pro Lys Val Glu Cys
 290 295 300
 Cys Val Arg Ala Leu Ala Gln Gly Val His Thr Ala Ser Ile Ile Asp
 305 310 315 320
 Gly Arg Val Pro His Ser Leu Leu Leu Glu Ile Leu Thr Asp Glu Gly
 325 330 335
 Thr Gly Thr Met Ile Thr Gly
 340

<210> 5
 <211> 1204
 <212> DNA
 <213> Glycine max

<400> 5

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ccaccgcgcc atttccgcgg tggcgaacgc ggcgcaacct ccactcgccg ccgccactgc 180
caccgagggt cagtaccgag tcgatgtgct ctcgagatcg ctcccttca tccagaaatt 240
ccgcggcaaa accatcgtcg tcaagtacgg cggcgccgcc atgaagtccc cggagctcca 300
ggcctccgtg atcaacgacc ttgtcctcct ctctcgctc ggcctccgcc ccgtcctggg 360
ccacggcggc ggccccgaga tcaactcctg gctcggccgc ctcaacatcc ccgccgtctt 420
ccgcgacggc ctccgcgtca ccgacgccga caccatggag atcgtctcca tggctcctcg 480
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cctctctggc atggacggcc gcctcctcac cgcccgcccc gctcccaagg ccgccgacct 600
cggctacgtc ggcgagggtc caccgcgtcg tcccgcctc ctccgctccc taatcgacac 660
cagccacatc cccgtcgtca cctccgtcgc cgccgatgaa tccggacagc cctacaacat 720
caacgccgac accgtcgccg gagaattggc agcgtcgtc ggcgcgga ga agctgattct 780
gctgaccgat gtggcgggaa ttctggaaga tcggaacgac cctgacagct tgggtgaagaa 840
gattgacata aaaggagtga agaaaatgat ggaagatgga aaagttgggt gtggaatgat 900
acctaaggtt aattgttgcg ttaggtcctt ggcgcaagg gttattacag cgagtattat 960
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cttgagttga gggtgcattg cagcacttgt tttgttagag attggtgatt gtttttaagt 1140
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aaaa 1204

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<210> 6
 <211> 342
 <212> PRT
 <213> Glycine max

B4

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<400> 6
Met Met Ala Gly Ala Ala Lys Thr Leu Thr Asn Leu Cys Pro Ser Phe
  1              5              10              15

Pro Phe Pro Thr Lys Pro Gln Asn Gln Leu Thr Thr Ser His Ala Phe
      20              25              30

Pro Ser Thr Arg Leu Arg His Arg Ala Ile Ser Ala Val Ala Asn Ala
      35              40              45

Ala Gln Pro Pro Leu Ala Ala Ala Thr Ala Thr Glu Gly Gln Tyr Arg
      50              55              60

Val Asp Val Leu Ser Glu Ser Leu Pro Phe Ile Gln Lys Phe Arg Gly
      65              70              75              80

Lys Thr Ile Val Val Lys Tyr Gly Gly Ala Ala Met Lys Ser Pro Glu
      85              90              95

Leu Gln Ala Ser Val Ile Asn Asp Leu Val Leu Leu Ser Cys Val Gly
      100             105             110

Leu Arg Pro Val Leu Val His Gly Gly Gly Pro Glu Ile Asn Ser Trp
      115             120             125

Leu Gly Arg Leu Asn Ile Pro Ala Val Phe Arg Asp Gly Leu Arg Val
      130             135             140

Thr Asp Ala Asp Thr Met Glu Ile Val Ser Met Val Leu Val Gly Lys
      145             150             155             160

Val Asn Lys Thr Leu Val Ser Leu Ile Asn Lys Ala Gly Ala Thr Ala
      165             170             175

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Val Gly Leu Ser Gly Met Asp Gly Arg Leu Leu Thr Ala Arg Pro Ala
 180 185 190
 Pro Lys Ala Ala Asp Leu Gly Tyr Val Gly Glu Val Ala Arg Val Asp
 195 200 205
 Pro Ala Val Leu Arg Ser Leu Ile Asp Thr Ser His Ile Pro Val Val
 210 215 220
 Thr Ser Val Ala Ala Asp Glu Ser Gly Gln Pro Tyr Asn Ile Asn Ala
 225 230 235 240
 Asp Thr Val Ala Gly Glu Leu Ala Ala Ser Leu Gly Ala Glu Lys Leu
 245 250 255
 Ile Leu Leu Thr Asp Val Ala Gly Ile Leu Glu Asp Arg Asn Asp Pro
 260 265 270
 Asp Ser Leu Val Lys Lys Ile Asp Ile Lys Gly Val Lys Lys Met Met
 275 280 285
 Glu Asp Gly Lys Val Gly Gly Gly Met Ile Pro Lys Val Asn Cys Cys
 290 295 300
 Val Arg Ser Leu Ala Gln Gly Val Ile Thr Ala Ser Ile Ile Asp Gly
 305 310 315 320
 Arg Val Pro His Ser Leu Leu Leu Glu Ile Leu Thr Asp Glu Gly Ala
 325 330 335
 Gly Thr Met Ile Thr Gly
 340

<210> 7
 <211> 1246
 <212> DNA
 <213> Triticum aestivum

<220>
 <221> unsure
 <222> (492)..(542)
 <223> n = A, C, G, or T

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 ctaacctaaa ggccgcccgc gtcaggcccc tcgctctctc cgcgccccat ggacgccgcg 180
 ggctccgcgt ctccgctctc tctcctctcc tggcgccagc gcaggccgcg tccgcggcgc 240
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 cggtgggtgg caagtacggc ggccgcggcca tgaagtccgc ggagctgcag gcgtcggtga 360
 tccgcgacct ggctctctct tctgctgctg gctgctgccc cgtgctcgtg cagggcggcg 420
 gcccgagat caactcctgg ctgcagcgcg tcggggctta gccgcagttc cgcaacggcc 480
 tccgcgtcac gnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 540
 nnaagcagct cttatcccta atcaggcctg cggggaccac agcagttggc ctctgcagaa 600
 aggacgggcg catcctaacg gagcgcccc cccagacgc cgcagccctc ggggtcgtcg 660
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 ctgcccgggg ggagatcgcg gctgccattg gcgccgagaa gctgttgctg atcactgacg 840
 tgtccggcat actcgcggac cgggatgacc ccgggagcct ggtgaaggag attgacatcg 900

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ccggcgtagc gcggatggtg gccgagggca aggtgggtgg gggcatgata cccaaggtgg 960
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gctgaaactt gtttgtttgt tgttgttttt ttcttttctt ttttggttca cattctttgg 1140
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<210> 8
<211> 340
<212> PRT
<213> Triticum aestivum

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<222> (133)
<223> Xaa = ANY AMINO ACID

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<220>
<221> UNSURE
<222> (144)..(160)
<223> Xaa = ANY AMINO ACID

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Leu Pro Asn Pro Asn Leu Lys Ala Ala Arg Val Arg Pro Leu Ala Ser
      20             25             30

Ser Ala Pro His Gly Arg Arg Gly Leu Arg Val Ser Ala Ser Ser Ser
      35             40             45

Ser Leu Ala Pro Ala Gln Ala Ala Ser Ala Ala Leu Asn Arg Val Asp
      50             55             60

Val Leu Ser Glu Ala Leu Pro Phe Ile Gln Arg Phe Lys Gly Lys Thr
      65             70             75             80

Val Val Val Lys Tyr Gly Gly Ala Ala Met Lys Ser Pro Glu Leu Gln
      85             90             95

Ala Ser Val Ile Arg Asp Leu Val Leu Leu Ser Cys Val Gly Leu Arg
      100            105            110

Pro Val Leu Val His Gly Gly Gly Pro Glu Ile Asn Ser Trp Leu Gln
      115            120            125

Arg Val Gly Val Xaa Pro Gln Phe Arg Asn Gly Leu Arg Val Thr Xaa
      130            135            140

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
      145            150            155            160

Lys Gln Leu Leu Ser Leu Ile Arg Pro Ala Gly Thr Thr Ala Val Gly
      165            170            175

Leu Cys Arg Lys Asp Gly Arg Ile Leu Thr Glu Arg Pro Ser Pro Asp
      180            185            190

Ala Ala Ala Leu Gly Phe Val Gly Glu Val Thr Arg Lys Asn Pro Ser

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195 200 205

Val Leu His Pro Ile Ile Ala Ser Ser His Ile Pro Val Ile Ala Thr
210 215 220

Val Ala Ala Asp Glu Thr Gly Gln Ala Tyr Asn Ile Asn Ala Asp Thr
225 230 235 240

Ala Ala Gly Glu Ile Ala Ala Ala Ile Gly Ala Glu Lys Leu Leu Leu
245 250 255

Ile Thr Asp Val Ser Gly Ile Leu Ala Asp Arg Asp Asp Pro Gly Ser
260 265 270

Leu Val Lys Glu Ile Asp Ile Ala Gly Val Arg Arg Met Val Ala Glu
275 280 285

Gly Lys Val Gly Gly Gly Met Ile Pro Lys Val Gly Cys Cys Val Arg
290 295 300

Ala Leu Ala Gln Gly Val His Thr Ala Ser Ile Ile Asp Gly Arg Val
305 310 315 320

Pro His Ser Leu Leu Leu Glu Ile Leu Thr Asp Glu Gly Thr Gly Thr
325 330 335

Met Ile Thr Gly
340

B4

<210> 9
<211> 439
<212> DNA
<213> Triticum aestivum

<400> 9
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ggggtgcggc agatgggtatc cgggtgggcag gttgctggtg gaatgatccc aaagggtggag 180
tgctgcgtga gagccctcgc ccagggtgtg cacactgcaa gcatcatcga tgggcgtgtc 240
ccgcactcgc tgttgctcga gattctcaca gatgagggca ctggcacaat gatcaccggc 300
taagggtgtaa aatgcctcct tgggtacttcc ttatgccttt ctgttcatac tgccaatctg 360
ccatgtaatt tatgccaatg tagcctcacc tcatgattgc aataagagta ccttcctgac 420
aaaaaaaaa aaaaaaaaaa 439

<210> 10
<211> 100
<212> PRT
<213> Triticum aestivum

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1 5 10 15

Leu Thr Asp Val Ser Gly Ile Leu Ala Asp Arg Asn Asp Pro Gly Ser
20 25 30

Leu Val Lys Glu Ile Asp Ile Ala Gly Val Arg Gln Met Val Ser Gly
35 40 45

Gly Gln Val Ala Gly Gly Met Ile Pro Lys Val Glu Cys Cys Val Arg

50 55 60
 Ala Leu Ala Gln Gly Val His Thr Ala Ser Ile Ile Asp Gly Arg Val
 65 70 75 80
 Pro His Ser Leu Leu Leu Glu Ile Leu Thr Asp Glu Gly Thr Gly Thr
 85 90 95
 Met Ile Thr Gly
 100
 <210> 11
 <211> 297
 <212> PRT
 <213> Synechocystis sp.
 <400> 11
 Met Ser Ser Thr Gln Asp Tyr Ile Gly Glu Glu Ala Ala Thr Arg Val
 1 5 10 15
 Lys Ile Leu Ser Glu Ala Leu Pro Tyr Ile Gln His Phe Ala Gly Arg
 20 25 30
 Thr Val Val Val Lys Tyr Gly Gly Ala Ala Met Lys Asp Ser Asn Leu
 35 40 45
 Lys Asp Lys Val Ile Arg Asp Ile Val Phe Met Ala Ser Val Gly Ile
 50 55 60
 Arg Pro Val Val Val His Gly Gly Gly Pro Glu Ile Asn Thr Trp Leu
 65 70 75 80
 Asp Lys Val Gly Ile Glu Pro Gln Phe Lys Asp Gly Leu Arg Val Thr
 85 90 95
 Asp Ala Ala Thr Met Asp Ile Val Glu Met Val Leu Val Gly Arg Val
 100 105 110
 Asn Lys Glu Leu Val Asn Leu Ile Asn Gln Ala Gly Gly Lys Ala Val
 115 120 125
 Gly Leu Cys Gly Lys Asp Gly Gln Leu Met Thr Ala Arg Thr Met Thr
 130 135 140
 Asn Lys Asp Val Gly Phe Val Gly Glu Val Ser Ser Val Asp Ala Arg
 145 150 155 160
 Val Val Glu Thr Leu Val Lys Ser Gly Tyr Ile Pro Val Ile Ser Ser
 165 170 175
 Val Ala Ala Asp Glu Phe Gly Gln Ala His Asn Ile Asn Ala Asp Thr
 180 185 190
 Cys Ala Gly Glu Leu Ala Ala Ala Leu Gly Ala Glu Lys Leu Ile Leu
 195 200 205
 Leu Thr Asp Thr Arg Gly Ile Leu Arg Asp Tyr Lys Asp Pro Ser Thr
 210 215 220
 Leu Ile His Lys Leu Asp Ile Gln Gln Ala Arg Glu Leu Ile Gly Ser

34

225 230 235 240
 Gly Ile Val Ala Gly Gly Met Ile Pro Lys Val Thr Cys Cys Val Arg
 245 250 255
 Ser Leu Ala Gln Gly Val Arg Ala Ala His Ile Leu Asp Gly Arg Leu
 260 265 270
 Pro His Ala Leu Leu Leu Glu Val Phe Thr Asp Leu Gly Ile Gly Ser
 275 280 285
 Met Ile Val Ala Ser Gly Tyr Asp Leu
 290 295

<210> 12
 <211> 346
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: CONSENSUS

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 <222> (2)
 <223> Xaa = Leu OR Met

<220>
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 <222> (3)
 <223> Xaa = Leu OR Ala

<220>
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 <222> (4)
 <223> Xaa = Thr, Ala, OR Gly

<220>
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 <222> (5)
 <223> Xaa = Lys OR NONE

<220>
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 <222> (6)
 <223> Xaa = Pro OR NONE

<220>
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 <222> (7)
 <223> Xaa = His, Tyr, OR NONE

<220>
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 <223> Xaa = Leu OR NONE

<220>
 <221> UNSURE

<222> (9)
 <223> Xaa = Ser, Ala, OR NONE

 <220>
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 <222> (10)
 <223> Xaa = Asn, Ser, Ala, OR NONE

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 <222> (11)
 <223> Xaa = Ser, Lys, OR Pro

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 <222> (12)
 <223> Xaa = Leu, Ser, Thr, OR Ala

 <220>
 <221> UNSURE
 <222> (13)
 <223> Xaa = Leu OR Phe

 <220>
 <221> UNSURE
 <222> (14)
 <223> Xaa = Pro, Thr, OR NONE

 <220>
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 <222> (15)
 <223> Xaa = Val, Leu, OR Asn

 <220>
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 <222> (16)
 <223> Xaa = Pro OR Leu

 <220>
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 <220>
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 <220>
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 <220>
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 <223> Xaa = Pro, Val, Phe, OR Leu

 <220>
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<222> (21)
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 <223> Xaa = Thr, Ala, OR Asn

 <220>
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 <223> Xaa = Leu, Pro, OR Lys

 <220>
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B4

Ser Cys Val Gly Leu Xaa Pro Val Leu Val His Gly Gly Gly Pro Glu
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